

**Negative Online Reviews of Orthodontists:
Content Analysis of Complaints Posted by Dissatisfied Patients**

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Abstract

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Introduction: Patients may express views about their orthodontic care by posting publicly available reviews on the internet. This study analyzed online reviews of orthodontists with an emphasis on the types and frequency of complaints expressed in negative reviews.

Methods: A random sample of 10.6% of the members of the American Association of Orthodontists was reduced using eligibility criteria to the subset of members who practiced in an office limited to orthodontics, had an online presence, and had negative (1- or 2-star) reviews on google and/or yelp. Information regarding orthodontists and their offices was collected and each negative online review was saved for content analysis. If an office posted a response to a negative review, that response was also saved for analysis.

Results: Of the 807 eligible orthodontists, 92.4% had reviews on google and/or yelp. Average ratings of orthodontists were very positive [i.e., 5- and 4-star reviews constituted >97% (google)

and >88% (yelp) of reviews] with an average per orthodontist rating of 4.72 on google and 4.42 on yelp. Yet, more than half of the orthodontists (50.8%) also had at least one negative review. The three most frequently mentioned categories of complaints concerned Quality of Care/Service, Interpersonal Characteristics, and Money/Financial issues. A detailed analysis of the specific kinds of complaints is described. Responding to negative online reviews had little effect on overall online rating or having a review improved.

Conclusions: Understanding the complaints dissatisfied orthodontic patients express in online reviews may suggest strategies to improve patient satisfaction and improve online reputation.

Table of Contents

	Page
Introduction.....	3
Methods.....	7
Sample Selection.....	8
Data Collection.....	9
Negative Review Content Analysis.....	10
Results.....	11
Figure 1.....	12
Table 1.....	13
Table 2.....	14
Table 3.....	17
Table 4.....	21
Discussion.....	22
Conclusions.....	28
Appendix.....	29
References.....	34

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Introduction

Since the advent of the consumer rights movement in the 1970's, an increased emphasis has been placed on patient satisfaction in health care.^{1,2} Patient satisfaction has been used as a proxy for assessing the quality of health care, and has been associated with increased treatment compliance, better perceived treatment results, and fewer medical malpractice claims.^{1,3} In addition to the link between patient satisfaction and quality of health care, achieving patient satisfaction has been viewed as a method of practice building during an era of increased competition within health care.^{4,5} As a result, patient satisfaction has received ample attention from several medical and dental specialties.⁶⁻¹²

The specialty of orthodontics has also had considerable research conducted over the last 20 years to evaluate patient satisfaction.¹³⁻²⁰ This research has largely been performed using qualitative research methodology, which has mostly used thematic analyses of data collected from patient interviews and focus groups.^{14,15,17,21} Using qualitative research methodology, researchers have identified several factors that are closely associated with patient satisfaction or dissatisfaction in the field of orthodontics.^{15,16,21} According to Bennet and colleagues in 2001, the 3 main factor subscales with the highest validity and reliability in assessing patient satisfaction were: treatment process, psychosocial benefits, and overall treatment outcome.¹⁵ The treatment process consisted of factors such as orthodontist's communication in explaining the treatment and costs, time spent with patient, and interpersonal relations between the family and the orthodontist and staff. Psychosocial benefits consisted of factors pertaining to the child's confidence in appearance, and treatment outcome consisted of factors pertaining to having straighter teeth, a better bite, and treatment being perceived as reasonable. A systematic review by Ingleheart in 2016 reported the 3 factors that are best correlated with patient satisfaction as

being: final appearance of teeth, doctor–staff–patient relationship related to quality of care and communication, and personality.²¹ Pain, retention appliances, and neuroticism were strongly related with dissatisfaction.²¹ In 2015, Pacheco-Pereira’s systematic review reported the factors most commonly associated with satisfaction were perceived esthetic outcomes, psychological benefits, and quality of care.¹⁶ Factors most associated with dissatisfaction were treatment duration, pain levels and discomfort, and use of retention appliances.¹⁶

The advent of social media has added a new method for evaluating patient satisfaction, which uses easily accessible online reviews, ratings, or commentaries posted by patients and / or parents of child patients.²²⁻²⁴ These websites allow patients to independently express their opinions about their treatment on a public domain. In addition, these patient reviews and ratings give prospective patients an easily accessible source to evaluate when selecting healthcare practitioners.^{2,25,26} In a 2013 survey by PwC Health Research Institute, nearly half of consumers reported having read health care reviews online. Of those consumers, 68% had utilized the information obtained from reading online reviews to aid them in choosing their health care provider. A 2012 survey by the University of Michigan reported similar results by finding that 65% of the US population was aware of online physician ratings, and 55% of respondents reported physician rating sites to be either “somewhat important” or “very important” when choosing a physician.²⁷

The number of people going online to rate, review, and even choose health care providers continues to increase. A study in 2012 by Gao and colleagues shows a rapid growth in popularity of physician ratings over a 5-year period.²⁸ Not only did the total number of physicians being rated increase, but the number of ratings per physician increased as well. Similar results were reported in a study from 2012 by Greaves and Millet, who followed the progress of online

ratings on England's National Health Service government-run healthcare website, and reported that the number of online physician reviews are consistently increasing each year.²⁹ A survey in 2016 reported that 82% of respondents use online reviews to evaluate physicians, which was a massive jump from the 25% figure obtained in their 2013 survey.²⁶ Furthermore, research suggests that prospective patients who search online are more likely to select a doctor with more favorable reviews, and avoid doctors with negative reviews.^{26,27,30} These trends indicate that online reviews will be an increasingly important factor for obtaining patients.

In the field of medicine, several studies have evaluated patient satisfaction based on views expressed on social media. Many of these studies suggest that these reviews may reflect the quality of health care. A 2013 study by Barach and colleagues suggest that the ratings posted on the Yelp commercial website may be capturing experiences that are comparable to traditional hospital performance measures, such as the systematically collected Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) ratings.³¹ Those authors also suggested that improvements in these patient experience measures may be associated with improvements in patient outcomes. A study by Gao and colleagues found a better correlation with online review content and quality of health care than from statistically significant correlations between the value of online ratings and the physician's clinical experience, board certification, education, or lack of malpractice claims.²⁸ The authors suggested that there may exist a positive correlation between online ratings and physician quality. Therefore, in addition to being meaningful from a commercial standpoint, online reviews might also be useful to evaluate and improve overall quality of care.

Although several studies have been conducted in the field of medicine to evaluate patient satisfaction as assessed through social media,^{22,23,25,32,33} there has been limited research in

orthodontics.^{4,24} And despite the generally high levels of patient satisfaction in the field of orthodontics,^{15,16,21} there are still dissatisfied patients, and social media has given these people a way to share their negative experiences with the world.

A 2014 survey published in JAMA reported that 37% of survey respondents who looked online for physicians avoided physicians with negative ratings.²⁷ And based on the continuous increase in use of online ratings and reviews,^{26,28,29} the number of prospective patients who consider these negative reviews in selecting a health care provider is also growing. A 2016 survey showed that 48% of respondents would even be willing to go out of network to avoid a doctor with worse reviews.²⁶ Thus, it is not surprising that orthodontists may be concerned that negative online reviews can damage one's reputation,³⁴ and have an adverse impact on the success of his or her practice. Negative online reviews can sometimes cause clinicians to file defamation lawsuits against the author of the negative review.^{35,36}

Despite the extensive amount of research into patient satisfaction, there is limited research in orthodontics evaluating the types of concerns that are expressed online using social media.^{4,24} Little research has been conducted to analyze the kinds of complaints that cause orthodontic patients or prospective patients to post negative reviews online. Patients who have good experiences with the orthodontist are frequently encouraged by the office to leave reviews online, which may inflate the number of positive reviews. In contrast, negative reviews are most likely unsolicited, and are likely to give insight about the causes of patient dissatisfaction. In addition, little is known regarding how orthodontic offices respond online to critical or disparaging reviews.

Evaluating negative online reviews may provide a better understanding of the factors that result in dissatisfaction with the orthodontist. Examining negative reviews, quantifying the most

frequent themes, and categorizing the nature of these themes should reveal the most common reasons for patients posting a negative review and rating. In addition, offices can choose whether to respond to poor reviews online, and patients may update their review to include a new rating. Only the most recently updated rating is included when calculating the overall star rating of the office. Therefore, evaluating how offices respond to these negative reviews, and determining if office responses to poor online reviews impacts their overall online rating, may give practitioners guidance on whether they should respond to negative online reviews. According to HIPAA, doctors cannot share any patient information in their response to online reviews, even if the patient initiates the discourse on a public domain. Little evidence exists regarding how well these regulations are followed.

Therefore, the goals of this study are to analyze online reviews of orthodontists with an emphasis on evaluating the content of negative online reviews as well as the content of responses to negative reviews. Results of this study will describe the types of complaints that elicit negative online reviews. By better understanding the causes of patient online complaints, strategies maybe employed to reduce the complaints, thereby increasing patient satisfaction, while improving the online reputation of the orthodontic office.

Materials and Methods

This descriptive study evaluates the content, prevalence and distribution of online reviews of orthodontists obtained from two commonly used websites that provide reviews of orthodontists, i.e., google and yelp.^{26,44} The University of Washington's Human Subjects Research Determination Guide indicated that the information obtained for this study did not require approval by the Institutional Review Board of the University of Washington, Seattle,

Washington, because the information was not considered private and because it is publicly available on a public domain.

Sample Selection.

The American Association of Orthodontics (AAO) provided its membership list from which a random sample of orthodontists was selected for this study. A large sample of orthodontists (~10.6% of the membership list) was selected to improve the accuracy of the descriptive statistical estimates being calculated.

In brief, orthodontists were excluded from further data collection if they could not be found on the AAO's online directory (e.g., for non-renewal of AAO membership). For those orthodontists in the online directory, a google search was performed to find all office addresses listed in the member's online directory entry to ascertain whether the offices are limited to orthodontics. If the office addresses listed in the directory could not be directly found using google, a search was conducted using the word "orthodontist" and the orthodontist's name, in an attempt to find any offices. If none of the offices under the searched orthodontist could be found online, the orthodontist was excluded from further investigation for having no online presence. Office addresses that were identified using google, were further investigated (e.g., visit the office website, the google maps office description, the yelp address description) to determine whether the office was limited to orthodontics. The orthodontist was excluded from further investigation if all of an orthodontist's offices were: located outside of Canada and USA, closed, previously included under another orthodontist already included in the study, or if the practice was not in an orthodontics-only office setting (e.g., general dentistry / pediatric dentistry / periodontics / university / hospital-based offices). If an orthodontics office had no negative online reviews, it

was excluded from the negative review content analysis component of the study. Figure 1 provides a flowchart of the orthodontists that are described in this study.

Data Collection.

Information regarding the orthodontist and the offices listed on the orthodontist's membership directory entry were collected. The specific information recorded for each unique orthodontist ID was: office addresses, office eligibility for study, and graduation year of the orthodontist. If the orthodontist had offices that were limited to orthodontics, then further information was recorded for each of those offices: presence of google reviews (yes or no), presence of negative google reviews (yes or no), date of website visit, website link, google rating, number of 1-star, 2-star, 3-star, 4-star, 5-star google reviews, number of google reviews without textual content, online google response to negative review (yes or no), negative review updates (yes or no), negative review updates to a positive review (yes or no), office address listed on yelp (yes or no), office claimed on yelp (yes or no), presence of yelp reviews (yes or no), presence of negative yelp reviews (yes or no), date of yelp website visit, yelp website link, yelp rating, number of 1-star, 2-star, 3-star, 4-star, 5-star yelp reviews, online response to negative yelp review (yes or no), negative review updates (yes or no), negative yelp review updated to a positive review (yes or no), and each office's address. American office addresses were classified as urban according to the U.S. Census Bureau's definition of having a population density of at least 1,000 people per square mile. Urban locations for Canadian offices were defined according to the 2011 Canadian Census, as having a population density of at least 400 people per square kilometer. All negative (i.e., 1-star and 2-star) google and yelp reviews, as well as office responses to negative reviews, were recorded verbatim.

Negative Review Content Analysis

All negative google and yelp reviews, and any corresponding office responses, were scored for content using a thematic scoring template (See Appendix A). The scoring template consisted of a series of codes that describe what type of problem is being reported, who was described as being responsible for the problem, and when during the different stages of orthodontic care the problem occurred. If an office posted a response to a negative review, that response was also scored for content. If an identical negative review about an office was posted on both the yelp and google websites, that response was scored only once for content. For a detailed description of each code in the scoring template, see Appendix B.

The initial draft of the scoring template was created based on common themes reported in previous research on orthodontic patient satisfaction. Then, a pilot study was conducted to evaluate and refine the draft scoring template. Three examiners (AMS, RK, DSR) independently scored batches of 10-15 negative online reviews using the draft template. The raters would then meet to discuss each review and any coding disagreements. The scoring template was adjusted after each meeting to better reflect the content of the reviews and to improve the reliability of the raters. This was done until the template was no longer being refined, and the three examiners were scoring similarly. Sixty randomly selected reviews were evaluated during this preliminary phase.

During the study, two examiners scored all 956 negative online reviews. One examiner (AMS) scored all reviews, while the two other examiners (DSR, RK) each scored half (478) of the reviews. After all reviews were scored, disagreements in coding were identified and discussed by two examiners to resolve the disagreement and arrive at a final score.

Intra-Rater Reliability: A reliability test was conducted by having two examiners (AMS, DSR) independently re-score the same subset of 50 randomly selected reviews from the 956 negative reviews. The two reviewers then met to discuss and resolve disagreements in scored codes. The reliability of scoring was calculated by comparing the codes assigned to those 50 re-scored reviews with the codes assigned to those same reviews that were scored several months previously using the identical scoring procedure. Reliability was calculated as the percentage agreement of codes for what the complaint was about, as well as the percentage agreement regarding who was considered the cause of the complaint. Reliability analysis for scoring was excellent. Specifically, re-scoring what types of complaints were in a negative online review yielded a 95.66% agreement, while re-scoring who was responsible for the problems was less reliable with 88.76% agreement.

Results

The study sample was randomly selected from the AAO list of 9,627 members as described in the flowchart (Figure 1). Approximately 10.6% (1,024) of the AAO membership was randomly selected for investigation and 93.1% (953) of those members were identified on the AAO's online membership directory during the ~14-month data collection period following receipt of the membership list. Of those orthodontists, ~84.7% (807) were in private practice orthodontics settings with an average number of 1.53 offices per orthodontist (median = 1 office, range of offices 1 - 8). Google and / or yelp reviews could be found for the great majority of these orthodontists (92.44%; 746/807) and more than half of the orthodontists (50.8%; 379/746) had at least one negative review posted online. The negative online reviews from these 379 orthodontists yielded a total of 956 negative reviews for analysis.

Figure 1. Flow diagram describing the process used to identify negative online reviews related to orthodontists practicing in offices that provide only orthodontic care.

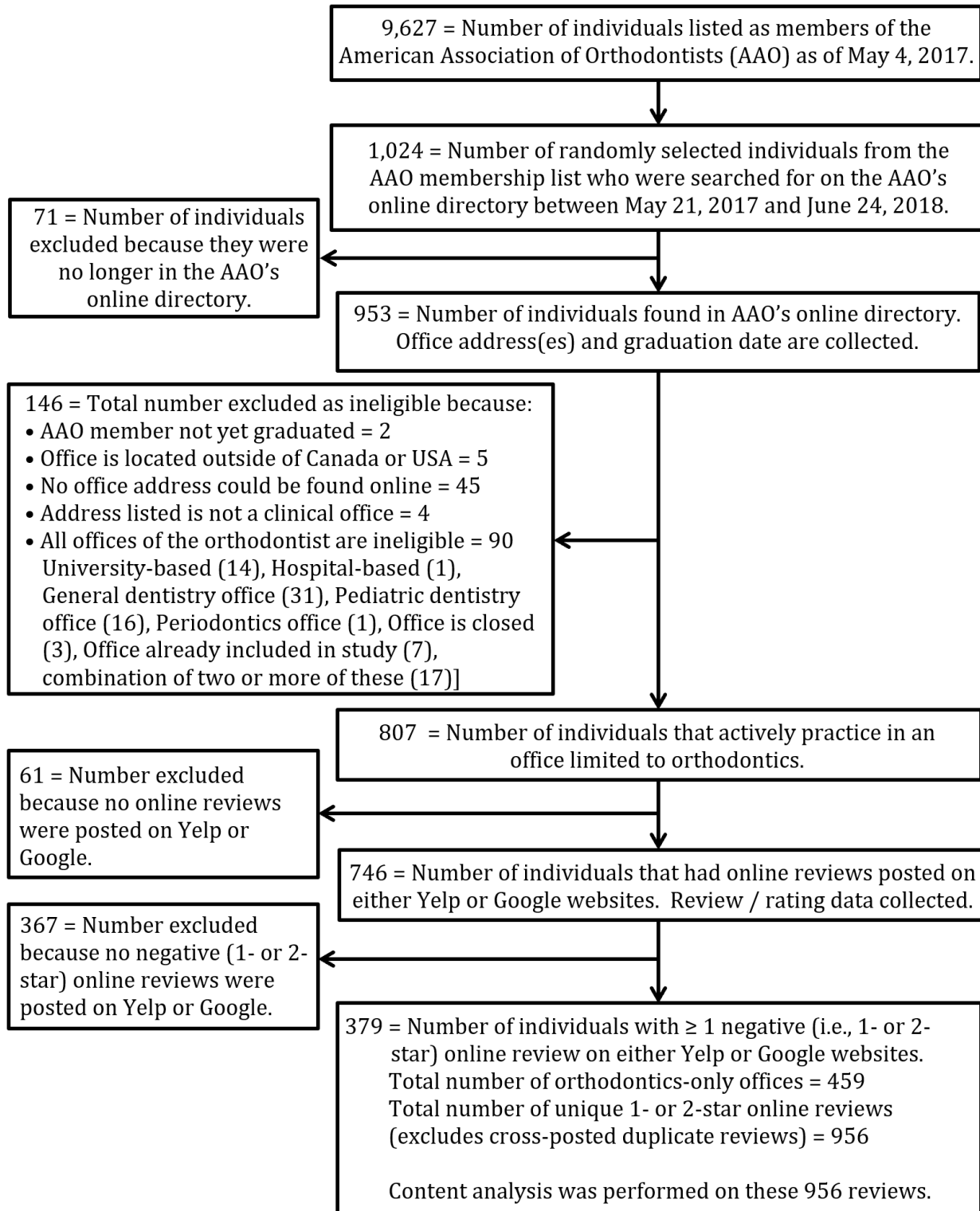


Table 1 provides a summary of the average google and yelp ratings for eligible orthodontists and their orthodontic offices as well as the distribution of ratings according to the number of stars assigned. An important observation is that most reviews are positive (i.e., 5- and 4-star reviews constituted >97% of reviews on google and >88% of reviews on yelp). The next largest percent of ratings for both google and yelp were 1-star reviews. Negative (1- and 2-star) reviews constituted 2.1% of reviews on google and 9.8% of reviews on yelp. All online reviews collected from every orthodontic office with reviews resulted in average rating of 4.89 stars on google, and 4.56 stars on yelp. The average rating per orthodontist was 4.72 stars on google, and 4.42 stars on yelp. The average rating per orthodontist was determined by taking the average of each orthodontist's office ratings on google and yelp to obtain the average google and yelp score for each orthodontist, and then averaging all orthodontist's average google and yelp ratings.

Table 1. Eligible Orthodontists and Orthodontics-Only Offices with an Online Presence

	Reviews on <u>Google</u>	Reviews on <u>Yelp</u>	Reviews on <u>Google or Yelp</u>	No reviews on <u>Google or Yelp</u>
<u>Orthodontists (N = 807)</u>				
% with reviews (1-5 stars)	89.20% (720)	62.08% (501)	92.44% (746)	7.56% (61)
% with 1- and 2-star reviews	36.43% (294)	23.42% (189)	46.97% (379)	
<u>Orthodontic Offices (N = 1,234)</u>				
% with reviews (1-5 stars)	81.04% (1,000)	50.81% (627)	85.25% (1,052)	14.75% (182)
% with 1- and 2-star reviews	27.63% (341)	17.91% (221)	37.20% (459)	
<u>Distribution of Reviews</u>				
Total number reviews	29,087	5,291		
% 5-star reviews	95.18% (27,687)	84.78% (4,486)		
% 4-star reviews	2.37% (689)	3.86% (204)		
% 3-star reviews	0.36% (104)	1.51% (80)		
% 2-star reviews	0.37% (107)	2.04% (108)		
% 1-star reviews	1.72% (500)	7.81% (413)		
Mean stars per review	4.89	4.56		

On average, orthodontists with no online reviews completed orthodontic training 4.2 years before those orthodontists who have online reviews (t-test = 2.3, df = 67.7, p = 0.02, allowing for unequal variance produced a 95% confidence interval for this difference range of 0.6 - 7.9 years before, Table 2). However, whether an orthodontist does or does not have negative online reviews was not significantly related to years since completing orthodontics training, because on average, orthodontists with no negative online reviews completed orthodontic training 1.7 years after orthodontists with any negative reviews, with a 95% confidence interval for this difference ranging from 0.1 years before to 3.4 years after (t-test = -1.9, df = 727.0, p > 0.05, Table 2). Table 2 also presents the average google and yelp total review numbers and average ratings for orthodontists according to decade of graduation. When orthodontists are compared according to whether they have negative online reviews or not, having negative reviews lowers the overall mean rating for orthodontist as would be anticipated. However, the magnitude of the reduction in mean rating caused by having negative reviews was larger than expected.

Table 2. Online Presence, Online Ratings and Years Since Graduating from Orthodontic Education

	Mean Years (SD, Range) After Ortho Graduation (2017 – graduation year)	Mean Google Rating (N, SD)	Mean Yelp Rating (N, SD)	
<u>Orthodontists in AAO directory (N = 953)</u>	23.0 (12.8, 0-69)	NA	NA	
<u>Eligible Orthodontists (N = 807)</u>				
No online reviews (N = 61)	27.6 (13.8,4-60)	NA	NA	
Had online reviews (N = 746)	* 23.3 (12.1, 3-69)	4.72 (720, 0.58)	4.42 (501, 1.00)	
<u>Orthodontists with online reviews (N = 746)</u>				
Had negative reviews (N = 379)	24.1 (11.5, 3-67)	4.50 (368, 0.73)	4.07 (293, 1.16)	
No negative reviews (N = 367)	22.5 (12.7, 3-69)	* 4.96 (352, 0.14)	* 4.92 (208, 0.25)	
<u>Orthodontist with Online Reviews by Graduation Decade</u>	<u>Google Orthodontists (N)</u>	<u>Yelp Orthodontists (N)</u>	<u>Mean Google Rating (Mean #reviews)</u>	<u>Mean Yelp Rating (Mean #reviews)</u>
1950s	3	1	3.31 (3.3)	1.00 (4.0)
1960s	7	4	4.67 (24.0)	4.75 (4.3)
1970s	68	46	4.46 (29.5)	4.19 (4.9)
1980s	141	86	4.67 (24.4)	4.15 (8.5)
1990s	194	145	4.67 (36.8)	4.45 (10.1)
2000s	215	152	4.84 (55.5)	4.47 (15.6)
2010 - 2017	92	64	4.88 (48.3)	4.78 (7.3)

* indicates statistically significant difference with P < 0.05

Most negative online reviews (70.50%) described the period of “active orthodontic treatment.” The next most frequently cited periods of orthodontic care referred to the: 1) “Exam / Consult / Records” appointments (23.01%), 2) “No specified time / in general” (19.56%), 3) “Retention Phase or Post-Treatment Retrospective Evaluation” (16.42%), and 4) Prior to the Initial Appointment” (6.69%). Other possible phases of orthodontic care such as: “Recall” exams, “Second Opinion” exams, and “Emergency Appointments” occurred in less than 1% of reviews.

The findings from the content analysis of the types of complaints expressed in at least 1% of the 956 negative online reviews are presented in Table 3. The three most common general categories of complaints found in negative reviews were about: 1) Quality of Care / Service, which occurred in 53.24% of reviews, 2) Interpersonal, which occurred in 51.99% of reviews, and 3) Money / Financial, which occurred in 46.86% of reviews. Significant but less frequent types of complaints had to do with: 4) Time, which occurred in 26.78% of reviews, 5) Communication, which occurred in 23.85% of reviews, and 6) Unprofessional behavior, which occurred in 10.67% of reviews. Specific types of complaints within each of these categories are delineated in Table 3. The top 5 specific complaints across all categories were “Impolite / Rude / Mean” (24% of reviews), “Bad Outcome / Complications / Poor Progress” (21% of reviews), “Lack of skill / Ability / Errors / Organization” (18% of reviews), “Money Before Patients/Greedy” (16% of reviews), and “No Time for Patient / Factory Environment” (14% of reviews).

Table 3 lists the types of complaints that were mentioned in at least 1% of the negative reviews evaluated (i.e., ≥ 10 of the 956 reviews). Each type of complaint was further classified according to who was identified as being responsible, i.e., the: 1) Orthodontist, 2) Clinical Assistants, 3) Non-Clinical Office Staff, 4) Not Specified. Because a single online review could make the same type of complaint about different personnel, an individual review could be counted more than once regarding who was responsible. Therefore, the number of online reviews mentioning a type of complaint does not equal the sum of the reviews that were attributed to personnel categories for that complaint.

<u>Types of Complaints in Online Reviews</u>	Number (%) of 956 Reviews	<u>Number (%) of Reviews Per Complaint Attributed to Each Source</u>			
		Orthodontist	Clinical Assistants	Office Staff	Not Specified
QUALITY OF CARE / SERVICE	509 (53.24%)				
Bad outcome (not relapse) / Not finish / Complications	204 (21.34%)	164 (80.39%)	5 (2.45%)	1 (0.49%)	34 (16.67%)
Errors: Poor skill / ability / office organization	173 (18.10%)	84 (48.55%)	60 (34.68%)	24 (13.87%)	31 (17.92%)
No time for patient / Factory environment / Inattentive	135 (14.12%)	108 (80.00%)	5 (3.70%)	6 (4.44%)	24 (17.78%)
Disagree with: Plan / Approach / Need for treatment	98 (10.25%)	93 (94.90%)	0 (0.00%)	3 (3.06%)	2 (2.04%)
Pain complaints / Procedures uncomfortable	68 (7.11%)	37 (54.41%)	19 (27.94%)	3 (4.41%)	10 (14.71%)
Broken (or poor quality): Appliance / Brackets / Wire	55 (5.75%)	20 (36.36%)	13 (23.64%)	1 (1.82%)	22 (40.00%)
Not hygienic / Not sanitary	22 (2.30%)	17 (77.27%)	2 (9.09%)	1 (4.55%)	4 (18.18%)
Poor interdisciplinary care / referral / sending records	20 (2.10%)	9 (45.00%)	0 (0.00%)	6 (30.00%)	6 (30.00%)
INTERPERSONAL	497 (51.99%)				
Impolite / Rude / Mean / Arrogant / Insult / Humiliate	225 (23.54%)	96 (42.67%)	29 (12.89%)	96 (42.67%)	28 (12.44%)
Uncaring / Patient not priority / Patient ignored	129 (13.49%)	60 (46.51%)	13 (10.08%)	41 (31.78%)	25 (19.38%)
Dishonest / Lie / Distrust / Cheated	109 (11.40%)	54 (49.54%)	6 (5.50%)	33 (30.28%)	24 (22.02%)
Poor personality - social skills / Awkward / Unfriendly	95 (9.94%)	53 (55.79%)	9 (9.47%)	27 (28.42%)	12 (12.63%)
Disrespectful / Demeaning / Condescending	73 (7.64%)	50 (68.49%)	5 (6.85%)	10 (13.70%)	11 (15.07%)
Blaming patient for: Results / Tardiness / Crooked teeth	45 (4.71%)	30 (66.67%)	5 (11.11%)	8 (17.78%)	4 (8.89%)
Insensitive (ethnic, cultural) / Inconsiderate / Judgmental	44 (4.60%)	28 (63.64%)	8 (18.18%)	6 (13.64%)	3 (6.82%)
Aggressive / Argue / Angry / Harass	40 (4.18%)	33 (82.50%)	1 (2.50%)	7 (17.50%)	1 (2.50%)
MONEY / FINANCIAL	448 (46.86%)				
Money before patients / Greedy	149 (15.59%)	93 (62.42%)	0 (0.00%)	14 (9.40%)	47 (31.55%)
Extra (hidden) costs / Price change / Overcharge	104 (10.88%)	47 (45.19%)	0 (0.00%)	38 (36.54%)	20 (19.23%)
Too (very) expensive / Treatment not worth money	101 (10.56%)	68 (67.33%)	0 (0.00%)	7 (6.93%)	26 (25.74%)
Billing / Insurance / Flex spending account problems	84 (8.79%)	9 (10.71%)	1 (1.19%)	69 (82.14%)	6 (7.14%)
More money than others	53 (5.54%)	40 (75.47%)	0 (0.00%)	5 (9.43%)	8 (15.09%)
Paid for services not: Completed / Delivered / No refund	47 (4.92%)	26 (55.32%)	1 (2.13%)	13 (27.66%)	9 (19.15%)
Hard sell / Salesman / Pushy / Rushed to start treatment	43 (4.50%)	23 (53.49%)	1 (2.33%)	10 (23.26%)	11 (25.58%)
Re-treatment too expensive	13 (1.36%)	9 (69.23%)	0 (0.00%)	1 (7.69%)	3 (23.08%)

TIME	256 (26.78%)				
Long wait / Running behind / Rushed	93 (9.73%)	28 (30.11%)	4 (4.30%)	22 (23.66%)	44 (47.31%)
Treatment duration too long	80 (8.37%)	59 (73.75%)	2 (2.50%)	1 (1.25%)	19 (23.75%)
Appointments: Poor availability / Inflexible scheduling	70 (7.32%)	9 (12.86%)	0 (0.00%)	39 (55.71%)	22 (31.43%)
Scheduling errors / changes	25 (2.62%)	0 (0.00%)	1 (4.00%)	23 (92.00%)	1 (4.00%)
Duration of treatment appointments is too long	11 (1.15%)	4 (36.36%)	2 (18.18%)	0 (0.00%)	6 (54.55%)
COMMUNICATION	228 (23.85%)				
Didn't answer questions / Didn't return call	91 (9.52%)	23 (25.27%)	2 (2.20%)	69 (75.82%)	3 (3.30%)
Inaccessible (not answer phone) / Don't acknowledge	55 (5.75%)	9 (16.36%)	1 (1.82%)	42 (76.36%)	3 (5.45%)
Doesn't listen to patient / Misunderstands patient	47 (4.92%)	32 (68.09%)	3 (6.38%)	10 (21.28%)	4 (8.51%)
Didn't explain well / Gave inaccurate information	44 (4.60%)	22 (50.00%)	8 (18.18%)	10 (22.73%)	10 (22.73%)
Does not give treatment plan / details / options / updates	25 (2.62%)	19 (76.00%)	2 (8.00%)	4 (16.00%)	3 (12.00%)
UNPROFESSIONAL	102 (10.67%)	39 (38.24%)	11 (10.78%)	37 (36.27%)	25 (24.51%)

Certain types of complaints are typically attributed to specific members of the orthodontic office (Table 3). For example, orthodontists were typically cited for problems about excessive length of treatment while the front office staff were cited for scheduling errors / changes. Complaints regarding money/financial issues typically referred to the orthodontist although 82.14% of billing problems were attributed to the billing staff. Communication complaints were largely about the reception staff, interpersonal complaints were most frequently associated with the orthodontist and the reception staff, and quality of care/service was most frequently attributed to the orthodontist.

Miscellaneous complaints that were frequently mentioned were: 1) poor customer service (7.64% of reviews), 2) lost/broken/replace retainer (7% of reviews), and bad office hours (3.14% of reviews). Bad office hours were categorized as miscellaneous rather than as time complaints to differentiate it as a structural office characteristic, rather than a lack of availability within the scheduled office hours. Threats of legal action or formal complaints sent to a third party occurred in 1.7% of reviews, while complaints of no privacy occurred in 1.3% of reviews. In 3% of all reviews, no identifiable complaint could be found.

Table 4 provides a description of the 219 office responses that posted in reply to negative online reviews. A minority of orthodontic offices (27.3%, 93/341) that received a negative google review posted a response and none of these negative reviews were updated following the office's response. Similarly, a minority of orthodontic offices (31.5%, 70/222) that received a negative yelp review posted a response to the negative review. Out of these 70 offices, 17 (24.3%) offices had patients update their review following the office response. However, only 4 (23.5%) offices had reviews that were updated to a more positive rating of 3-, 4-, or 5- stars. The remaining 13 updated reviews (76.5%) remained either a 1- or 2-star rating. Offices that

responded to negative reviews had fewer total reviews on average. Offices that responded to negative google reviews had similar google ratings as offices that did not respond to negative google reviews (4.73 vs 4.68). However, on average, offices that responded to negative yelp reviews had significantly lower ratings (0.39 stars) than offices that did not respond to yelp ratings (4.07 vs 4.46; t-test = -2.0, df = 81.9, p = 0.04, allowing for unequal variance produced a 95% confidence interval for this difference range from 0.01 - 0.76 lower, Table 4).

In order from the most to least frequently mentioned, the content of responses posted by orthodontic offices was to: 1) request contact to resolve the issue (52.97% of responses), 2) apologize for the problem (51.14%), 3) provide an explanation and / or information about the problem (48.40%), 4) defend the actions of the office against the accusation (28.31%), 5) thank the reviewer for the comments (26.03%), 6) question the validity or authenticity of the review (14.61%), 7) argue with the reviewer or review (8.68%), and 8) cite HIPAA regulations as the reason the office cannot address critical details of the complaint (3.2%) [Table 4].

Table 4. Responses to Negative Online Reviews Posted by Orthodontists and Orthodontics-Only Offices

	<u>Google</u>	<u>Yelp</u>	<u>Google or Yelp</u>
<u>Orthodontists (N) with 1- and 2-star reviews</u>	297	189	379
% Orthodontists (N) posting a response	29% (86)	31.22% (59)	34.3% (130)
Mean number of total reviews	28.20	10.90	
Mean rating for orthodontist	4.73	4.07	
% Orthodontists (N) not posting a response	71% (211)	68.78% (130)	66.41% (255)
Mean number of total reviews	39.00	12.10	
Mean rating for orthodontist	4.68	4.46	
<u>Orthodontic Offices (N) with 1- and 2-star reviews</u>	341	222	456
% Orthodontic offices (N) posting a response	27.3% (93)	31.5% (70)	33.1% (151)
Offices with updated reviews following reply: % (N)	0.00% (0)	24.3% (17)	
Review updated to 3-, 4-, or 5-stars: % (N)	NA	23.5% (4)	
Review remained 1- or 2-stars: % (N)	NA	76.5% (13)	
<u>Content and distribution of response types</u>			
Responses to online negative reviews (N)	110	109	219
<u>Content type included in response* % (N)</u>			
Request Contact About Problem:	60.91% (67)	44.95% (49)	52.97% (116)
Apologetic:	48.18% (53)	54.13% (59)	51.14% (112)
Explanatory / Informative:	38.18% (42)	58.72% (64)	48.40% (106)
Defensive:	26.36% (29)	30.28% (33)	28.31% (62)
Thanking:	26.36% (29)	25.69% (28)	26.03% (57)
Questioning Validity of Review:	20.91% (23)	8.26% (9)	14.61% (32)
Argumentative:	6.36% (7)	11.01% (12)	8.68% (19)
Cite HIPAA Concerns:	5.45% (6)	0.92% (1)	3.20% (7)
[*A reply to an online review can contain more than one content type and so the total can exceed 100%.]			

Discussion

Overall, google and yelp ratings for orthodontists are high when compared to the average google and yelp rating across many industries, and also general dentistry.^{40,42} This finding matches the overall high patient satisfaction rates seen in orthodontic qualitative research performed using questionnaires and surveys.^{14,37,38,39} The average google rating for orthodontists in this study was 4.72, while the average yelp rating per orthodontist was 4.42. These average ratings are higher than the average google rating across many industries, which are estimated to be in range of 4.3-4.42 for google, and 3.6-3.77 for yelp.^{40,41,42} Average google ratings for orthodontists are also higher than ratings found across dentistry, which surveys estimate to be 4.59 on google.⁴² In our study, orthodontic offices were found to have google reviews 81% of the time, which is higher than the 74% of businesses across all industries with google reviews.⁴² Thus, orthodontists are using google and yelp reviews with high frequency and are receiving higher average ratings relative to other professions.

The ratings for orthodontists on google are higher than yelp. This difference could occur for multiple reasons. The yelp rating system scores in increments of 0.5, and rounds to the nearest 0.5 interval. Yelp also directly averages all recommended reviews to obtain the final scores, and does not use other factors to arrive at the final average rating.⁴⁶ In contrast, Google ratings are scored in increments of 1, and the average rating is rounded to the nearest tenth.⁴⁷ Also, the final google rating is not only calculated from user ratings, but also uses a “variety of other signals to ensure that the overall score best reflects the quality of the establishment”.⁴⁷ These methodological differences in how mean ratings are calculated on the different websites may contribute to the differences in average rating. Also, people who post to yelp may be more critical, as the yelp website is designed specifically for leaving reviews, whereas it is optional to

write a review on google after giving a star rating. Regardless, this study, like studies done in other professions,^{40,41,42} suggests that orthodontists are more likely to have a higher online rating on google than yelp.

Based on online review metrics, the field of orthodontics receives highly positive patient ratings relative to other fields. Indeed, patients are so pleased with their orthodontic care that approximately 47.5% of orthodontists with online google and / or yelp reviews have no negative (1- or 2-star) reviews. Nevertheless, receiving negative reviews can be very concerning to an orthodontic practice. Commercial firms market services to orthodontists to help manage their online reputation. Legal action for defamation has been pursued in response to online reviews⁴⁶ but some suggest that this should be considered carefully as legal action may impact one's reputation more than the presence of the negative review.⁴³ A commonly recommended strategy is to overwhelm negative reviews by encouraging a large number of positive reviews.⁴³ The current study found that >97% of google reviews are positive (4- and 5-star) and only about 2% of reviews are negative (1- and 2-star). Despite the huge predominance of positive reviews, it is trivial for anyone on the website to select the much smaller number of negative reviews to read. Yelp has a voting system for website viewers to vote on which reviews were most "useful", "funny", or "cool". Negative reviews may get more attention from patients than positive reviews, as they may get higher number of up-votes than positive reviews. Another strategy to improve an office's online presence is to prevent the problems that cause patients to post negative reviews. The current study analyzed the content of negative online reviews to provide guidance about the nature of the problems that result in negative reviews. Such information can guide in-office training and practices to improve patient satisfaction.

The most frequently coded themes for patient dissatisfaction in this study were quality of care/service and interpersonal issues as the first and second most common themes, with money/financial issues as a close third. The first two themes support the findings of other qualitative research on orthodontic patient satisfaction. Feldmann's survey found that care and attention were the variables most highly correlated with satisfaction.³⁷ Pachêco-Pereira's systematic review reported the factors most commonly associated with satisfaction were perceived esthetic outcomes, psychological benefits, and quality of care, with quality of care being specifically linked to dentist-staff-patient interactions.¹⁶ Therefore, the most common reasons stated by patients for their dissatisfaction in these negative reviews agrees well with the factors previously identified as the most common factors related to satisfaction.

However, the factors associated most with dissatisfaction in those studies were not mentioned with as much prevalence in these negative online reviews. Pachêco-Pereira's systematic review showed the main causes of dissatisfaction were caused by treatment duration, pain/discomfort, and use of retention appliances.¹⁶ Feldmann also found pain to be one of the main factors associated with dissatisfaction. Although these individual complaints were mentioned in the present study more than the average complaint, they were not the most frequently mentioned complaints posted in these negative reviews.

An important advantage of the current study was that specific complaints could be analyzed in detail. The most frequently mentioned complaints were: Impolite/rude/mean, bad outcome, lack of skill/errors/organization, no time for patients/factory environment, greedy/money before patients, and uncaring/patient not priority. Complaints tended to be more about the interpersonal interactions they had with their care providers, and the level of care and attention the provider gave them. Complaints about having a poor treatment outcome, and

feeling like they were treated rudely, poorly, or not given the proper attention were common. Reviewers who posted negative reviews would describe feeling less like an individual patient but more like a component part moving through a high throughput assembly line factory, where the orthodontist or the office didn't care about them as individuals, and just wanted to treat them quickly, and profitably. The most common complaints under the money/financial theme were that: 1) offices cared about money more than the well-being of the patient or were greedy, 2) extra/hidden costs, and 3) treatment was too expensive or not worth the cost. It was interesting to find that patients would often complain about hidden costs more than the actual price of treatment being too high.

During the data analysis phase, complaints that were scored as "other" were listed and aggregated into new categories based on similarity of the complaints. Consequently, the following items were added to a revised scoring template (Appendix C) that can be used in future research: 1) lack of privacy during treatment, 2) sending patients to a different office location, 3) no itemized cost breakdown, and 4) poor office hours. An infrequent (16 out of the 956 reviews) but potentially important code has also been included for reviews that mention actual or potential legal action or filing of a formal complaint with a third party. In addition, items from the initial scoring template that were rarely used, have been removed from the revised scoring template in Appendix C.

Responding to negative online reviews did not seem to be an effective strategy to change a review to a positive one. The majority of patients (76.5%) who changed a review following an office response did not update it to a more positive score. However, our study was unable to assess whether reviews might have been removed following an office response, leaving open the possibility that office responses may cause some negative reviews to be removed. Average

ratings for orthodontists who posted responses to negative google did not differ, although average ratings for orthodontists who posted responses to negative yelp reviews were significantly lower than for orthodontists who did not post a response (4.07 to 4.46). While posting a response to a negative review has little obvious effect on the individual who wrote the review, it may have other effects. For example, a survey by ReviewTrackers found that 44.6% of people are more likely to visit a local business if it responds to negative reviews, whereas only 18.2% said they were not more likely, and 37.2% were neutral.⁴⁰ Also, responding to reviews on google increases traffic flow, which increases google ratings indirectly due to the way google determines its ratings. Another important consideration is whether a potential patient's decision to pursue treatment at that office is influenced by how an office responds to a negative review. As shown in Table 3, approximately two-thirds of offices choose not to reply to negative reviews while the responses made by the remaining offices exhibit a range of response styles (e.g., wanting to resolve the complaint, apologizing, thanking, arguing). It is unclear which style of response, if any, is viewed most positively by potential patients and future research should investigate this question.

Orthodontists should only post a response to a patient review that adheres to HIPAA regulations. Although an individual may post information on a public domain about experiences as a patient, an office should not post information that would violate patient privacy. While reading office responses as part of this study, the authors felt that some responses could be considered disclosure of HIPAA protected information, which may reflect a lack of awareness on the part of the orthodontist or office staff. Although it may be difficult to resist responding directly to patients who leave unfair or disparaging remarks, orthodontists should understand that health care providers are held to a different standard than other businesses regarding how one

may respond to online patient reviews (e.g., HIPAA laws). If an office chooses to respond to an online review, the AAO's general counsel provides useful guidelines to consider and the response should comply with HIPAA regulations.⁴³

Limitations of Study

During content analysis of negative reviews, the authors coding the negative reviews initially had difficulty coding who patients were blaming for the complaint. Unless it was clear from the review who was considered responsible for the problem, the raters decided to score it as unspecified or general office. This was done to minimize rater interpretation from influencing the scoring, but it may underestimate situations where the individual posting the review may have considered that specific personnel in the office were responsible. Thus, identification of who was responsible for certain types of complaints may be underestimated due to use of the unspecified category.

A potential source of bias in the study is the yelp recommendation algorithm filtering out which negative reviews were displayed on the webpage. Only negative reviews that were shown as recommended were included in the study, since reviews placed into the not-recommended section are not included in the rating of the website and are not visible on the web page directly. The reviews that are not recommended are filtered out by Yelp with the intention of hiding reviews that have a high chance of being fake.⁴⁵ The algorithm for filtering these reviews is not given out to the public, and it may be a potential source of bias, since reviews that were recommended may have different content than reviews which were filtered out through yelp's recommendation algorithm. Nevertheless, the results presented reflect what is visible on the website.

Conclusions

Orthodontic offices use online google and yelp reviews at a higher rate than most other professions, and orthodontists have higher google and yelp ratings than most other professions. Responding to negative online reviews was shown to have a limited effect on changing the person's review. The main reasons for orthodontic patient dissatisfaction seen in negative online reviews supports the most frequently mentioned themes related to patient satisfaction in other orthodontic qualitative research. Additionally, several themes were identified that have not been identified through other qualitative research studies. Negative online review content analysis clarifies the causes of patient dissatisfaction and suggests what areas could be improved to increase patient satisfaction.

Appendix A: Thematic Scoring Template Page (Page 1)

CHECK ALL BOXES THAT APPLY

RATER ID # _____

Orthodontist ID #:

Office #:

Google Negative Review #:

Yelp Negative Review #:

Rating:

Review (Insert Here):

Pt indicated transfer (100)

WHO (1 digit) (check all that apply) Orthodontist (1) Clinical Assistants (2) Reception/Office Manager/Billing (3) N.S.(4)

WHEN (2 digits) (check all that apply)

Pre-Appointment(1)	<input type="checkbox"/> (11)	<input type="checkbox"/> (21)	<input type="checkbox"/> (31)	<input type="checkbox"/> (41)
Recall(2)	<input type="checkbox"/> (12)	<input type="checkbox"/> (22)	<input type="checkbox"/> (32)	<input type="checkbox"/> (42)
Exam/Consult/Records(3)	<input type="checkbox"/> (13)	<input type="checkbox"/> (23)	<input type="checkbox"/> (33)	<input type="checkbox"/> (43)
2nd Opinion(4)	<input type="checkbox"/> (14)	<input type="checkbox"/> (24)	<input type="checkbox"/> (34)	<input type="checkbox"/> (44)
During Tx(5)	<input type="checkbox"/> (15)	<input type="checkbox"/> (25)	<input type="checkbox"/> (35)	<input type="checkbox"/> (45)
Retention / Post phase 2/comp Tx/Long retrospective(6)	<input type="checkbox"/> (16)	<input type="checkbox"/> (26)	<input type="checkbox"/> (36)	<input type="checkbox"/> (46)
Emergency Appt(7)	<input type="checkbox"/> (17)	<input type="checkbox"/> (27)	<input type="checkbox"/> (37)	<input type="checkbox"/> (47)
Not Specified / In General(8)	<input type="checkbox"/> (18)	<input type="checkbox"/> (28)	<input type="checkbox"/> (38)	<input type="checkbox"/> (48)

WHAT (last 3 digits) (check all that apply)

TIME (1)				
Long in waiting room/Running behind/rushed/waiting for Dr(11)	<input type="checkbox"/> (111)	<input type="checkbox"/> (211)	<input type="checkbox"/> (311)	<input type="checkbox"/> (411)
Tx. Appt - Too long (12)	<input type="checkbox"/> (112)	<input type="checkbox"/> (212)	<input type="checkbox"/> (312)	<input type="checkbox"/> (412)
Tx duration too long (13)	<input type="checkbox"/> (113)	<input type="checkbox"/> (213)	<input type="checkbox"/> (313)	<input type="checkbox"/> (413)
Too many appts/too frequent (14)	<input type="checkbox"/> (114)	<input type="checkbox"/> (214)	<input type="checkbox"/> (314)	<input type="checkbox"/> (414)
Schedule appts - poor avail. /inflexible scheduling (15)	<input type="checkbox"/> (115)	<input type="checkbox"/> (215)	<input type="checkbox"/> (315)	<input type="checkbox"/> (415)
Scheduling errors, changes (16)	<input type="checkbox"/> (116)	<input type="checkbox"/> (216)	<input type="checkbox"/> (316)	<input type="checkbox"/> (416)
Other (10)	<input type="checkbox"/> (110)	<input type="checkbox"/> (210)	<input type="checkbox"/> (310)	<input type="checkbox"/> (410)

If Other, Describe Here(10): _____

MONEY/FINANCIAL (2)

Too (very) expensive/Tx not worth \$\$ (21)	<input type="checkbox"/> (121)	<input type="checkbox"/> (221)	<input type="checkbox"/> (321)	<input type="checkbox"/> (421)
Re-Tx too expensive (22)	<input type="checkbox"/> (122)	<input type="checkbox"/> (222)	<input type="checkbox"/> (322)	<input type="checkbox"/> (422)
More \$ than others (23)	<input type="checkbox"/> (123)	<input type="checkbox"/> (223)	<input type="checkbox"/> (323)	<input type="checkbox"/> (423)
Extra (hidden) cost/price change/incorrect quotes/overcharge(24)	<input type="checkbox"/> (124)	<input type="checkbox"/> (224)	<input type="checkbox"/> (324)	<input type="checkbox"/> (424)
\$\$ before patients/Greedy (25)	<input type="checkbox"/> (125)	<input type="checkbox"/> (225)	<input type="checkbox"/> (325)	<input type="checkbox"/> (425)
Billing/Insurance/Flex Spending Account Problems (26)	<input type="checkbox"/> (126)	<input type="checkbox"/> (226)	<input type="checkbox"/> (326)	<input type="checkbox"/> (426)
Hard Sell/Salesman/ 'pushy' rushed to start (27)	<input type="checkbox"/> (127)	<input type="checkbox"/> (227)	<input type="checkbox"/> (327)	<input type="checkbox"/> (427)
Paid for service not delivered/completed/No Refund(28)	<input type="checkbox"/> (128)	<input type="checkbox"/> (228)	<input type="checkbox"/> (328)	<input type="checkbox"/> (428)
Transfer costs(29)	<input type="checkbox"/> (129)	<input type="checkbox"/> (229)	<input type="checkbox"/> (329)	<input type="checkbox"/> (429)
Other (20)	<input type="checkbox"/> (120)	<input type="checkbox"/> (220)	<input type="checkbox"/> (320)	<input type="checkbox"/> (420)

If Other, Describe Here(20): _____

COMMUNICATION (3)

Doesn't Listen to Pt. / misunderstands Pt. (31)	<input type="checkbox"/> (131)	<input type="checkbox"/> (231)	<input type="checkbox"/> (331)	<input type="checkbox"/> (431)
Didn't explain well / gave inaccurate information(32)	<input type="checkbox"/> (132)	<input type="checkbox"/> (232)	<input type="checkbox"/> (332)	<input type="checkbox"/> (432)
Didn't answer questions (in-person/phone) / didn't return call (33)	<input type="checkbox"/> (133)	<input type="checkbox"/> (233)	<input type="checkbox"/> (333)	<input type="checkbox"/> (433)
Tx details/options/Tx Plan not explained-given/ no Tx updates (34)	<input type="checkbox"/> (134)	<input type="checkbox"/> (234)	<input type="checkbox"/> (334)	<input type="checkbox"/> (434)
Inaccessible(no answer phone)/don't acknowledge/no check-in(35)	<input type="checkbox"/> (135)	<input type="checkbox"/> (235)	<input type="checkbox"/> (335)	<input type="checkbox"/> (435)

Appendix A: Thematic Scoring Template (Page 2)

CHECK ALL BOXES THAT APPLY

RATER ID # _____

No reminder phone calls/appointment Alerts(36)	<input type="checkbox"/> (136)	<input type="checkbox"/> (236)	<input type="checkbox"/> (336)	<input type="checkbox"/> (436)
Other (30)	<input type="checkbox"/> (130)	<input type="checkbox"/> (230)	<input type="checkbox"/> (330)	<input type="checkbox"/> (430)

If Other, Describe Here (30): _____

INTERPERSONAL (4)

Poor Personality/Poor Social Skills/Awkward/not friendly (41)	<input type="checkbox"/> (141)	<input type="checkbox"/> (241)	<input type="checkbox"/> (341)	<input type="checkbox"/> (441)
Dishonest/Lie/Distrust/Cheated/Lie for financial gain (42)	<input type="checkbox"/> (142)	<input type="checkbox"/> (242)	<input type="checkbox"/> (342)	<input type="checkbox"/> (442)
Uncaring/Pt not priority/Not accommodating/Ignored (43)	<input type="checkbox"/> (143)	<input type="checkbox"/> (243)	<input type="checkbox"/> (343)	<input type="checkbox"/> (443)
Insensitive (& ethnic, cultural)/Inconsiderate/judgmental (44)	<input type="checkbox"/> (144)	<input type="checkbox"/> (244)	<input type="checkbox"/> (344)	<input type="checkbox"/> (444)
Disrespectful/Demeaning/Condescending (45)	<input type="checkbox"/> (145)	<input type="checkbox"/> (245)	<input type="checkbox"/> (345)	<input type="checkbox"/> (445)
Aggressive/Argue/Angry/Harass (46)	<input type="checkbox"/> (146)	<input type="checkbox"/> (246)	<input type="checkbox"/> (346)	<input type="checkbox"/> (446)
Impolite/Rude/Mean/Arrogant/Insulting/Humiliate (47)	<input type="checkbox"/> (147)	<input type="checkbox"/> (247)	<input type="checkbox"/> (347)	<input type="checkbox"/> (447)
Comments about prior Tx; critical of other clinician opinions (48)	<input type="checkbox"/> (148)	<input type="checkbox"/> (248)	<input type="checkbox"/> (348)	<input type="checkbox"/> (448)
Blaming Patient for results/tardiness/crooked teeth (49)	<input type="checkbox"/> (149)	<input type="checkbox"/> (249)	<input type="checkbox"/> (349)	<input type="checkbox"/> (449)
Other (40)	<input type="checkbox"/> (140)	<input type="checkbox"/> (240)	<input type="checkbox"/> (340)	<input type="checkbox"/> (440)

If Other, Describe here: _____

QUALITY OF CARE / SERVICE (5)

Disagree w/ plan/approach/Judgement/need for tx(51)	<input type="checkbox"/> (151)	<input type="checkbox"/> (251)	<input type="checkbox"/> (351)	<input type="checkbox"/> (451)
Poor Interdisciplinary care /poor referral/poor sending records (52)	<input type="checkbox"/> (152)	<input type="checkbox"/> (252)	<input type="checkbox"/> (352)	<input type="checkbox"/> (452)
Not hygienic/sanitary/re-using single use only(53)	<input type="checkbox"/> (153)	<input type="checkbox"/> (253)	<input type="checkbox"/> (353)	<input type="checkbox"/> (453)
No time for pt/factory environ/inattentive/don't see main ortho(54)	<input type="checkbox"/> (154)	<input type="checkbox"/> (254)	<input type="checkbox"/> (354)	<input type="checkbox"/> (454)
Bad outcome (not relapse)/not finish/complications/poor progr(55)	<input type="checkbox"/> (155)	<input type="checkbox"/> (255)	<input type="checkbox"/> (355)	<input type="checkbox"/> (455)
Pain Complaints/Procedures uncomfortable (56)	<input type="checkbox"/> (156)	<input type="checkbox"/> (256)	<input type="checkbox"/> (356)	<input type="checkbox"/> (456)
Broken (or poor quality) appliance/Brackets/wire (57)	<input type="checkbox"/> (157)	<input type="checkbox"/> (257)	<input type="checkbox"/> (357)	<input type="checkbox"/> (457)
Lack of Skill/Errors/Ability/Office coordination/organization(58)	<input type="checkbox"/> (158)	<input type="checkbox"/> (258)	<input type="checkbox"/> (358)	<input type="checkbox"/> (458)
Tx not Individualized(59)	<input type="checkbox"/> (159)	<input type="checkbox"/> (259)	<input type="checkbox"/> (359)	<input type="checkbox"/> (459)
Other (50)	<input type="checkbox"/> (150)	<input type="checkbox"/> (250)	<input type="checkbox"/> (350)	<input type="checkbox"/> (450)

If Other, Describe here: _____

HIPPA (6) (160) (260) (360) (460)

UNPROFESSIONAL(7) (170) (270) (370) (470)

MISCELLANEOUS (8)

<input type="checkbox"/> Automated Patient Contact(81)	<input type="checkbox"/> Office Layout / Office Design(82)	<input type="checkbox"/> Refusal to treat (or continue to treat) (83)
<input type="checkbox"/> bad parking/office accessibility(84)	<input type="checkbox"/> Office cleanliness/shabby (85)	<input type="checkbox"/> Office catered towards only children/adult(86)
<input type="checkbox"/> multiple providers/staff turnover(87)	<input type="checkbox"/> Outdated technology/methods/not modern(88)	<input type="checkbox"/> Poor Customer Service (89)
<input type="checkbox"/> Lost/Broken/replace Retainer/Relapse(90)	<input type="checkbox"/> No Identifiable Complaint(91)	

Other – Describe Here(80): _____

Office Response (Insert Here):

Type of Office Response: Apologetic(92) Defensive(93) Thanking(94) Argumentative(95)
Explanatory/Informative(96) Questioning validity of review(97)
HIPPA(98) Ask to Contact/Trying to contact, Correct Problem(99)

Appendix B: Codes of Scoring Template Explained

INTERPERSONAL	
Impolite / Rude / Mean / Arrogant / Insult / Humiliate	Scored whenever patient stated these words, or words similar in nature
Uncaring / Patient not priority / Patient ignored	Scored whenever patient stated they felt like they were not important
Dishonest / Lie / Distrust / Cheated	Scored whenever patient felt they could not trust someone
Poor personality - social skills / Awkward / Unfriendly	Scored for general awkward or unpleasant interactions
Disrespectful / Demeaning / Condescending	Scored for disrespectful behavior towards the patient
Blaming patient for: Results / Tardiness / Crooked teeth	Scored when aspects related to treatment were blamed on the patient
Insensitive (ethnic, cultural) / Inconsiderate / Judgmental	Scored for insensitive treatment of patient
Aggressive / Argue / Angry / Harass	Scored for angry and aggressive behavior towards patient
QUALITY OF CARE / SERVICE	
Bad outcome (not relapse) / Not finish / Complications	Scored when treatment result was not what patient desired
Errors: Poor skill / ability / office organization	Scored when providers have a specific error or office/provider lacks ability
No time for patient / Factory environment / Inattentive	Scored when patient felt they did not receive proper attention towards their treatment
Disagree with: Plan / Approach / Need for treatment	Scored when patient did not agree with the treatment plan
Pain complaints / Procedures uncomfortable	Scored when patient felt pain or discomfort during procedures
Broken (or poor quality): Appliance / Brackets / Wire	Scored when appliances broke, brackets came off, wires poked patient
Not hygienic / Not sanitary	Scored when office or provider was not hygienic
Poor interdisciplinary care / referral / sending records	Scored when office could not refer properly or give patient records to take to another office
MONEY / FINANCIAL	
Money before patients / Greedy	Scored when patient felt office or providers cared more about money than patient
Extra (hidden) costs / Price change / Overcharge	Scored when patient felt surprised by charges they did not expect
Too (very) expensive / Treatment not worth money	Scored when patient expressed that the treatment was too much or not worth the money
Billing / Insurance / Flex spending account problems	Scored when patient expressed that there were difficulties with paying
More money than others	Scored when patient stated the office/provider was more expensive than another office/provider
Paid for services not: Completed / Delivered / No refund	Scored when patient could not get refund or did not get some specific that they paid for
Hard sell / Salesman / Pushy / Rushed to start treatment	Scored when office/provider was aggressive in getting the patient to start treatment
Re-treatment too expensive	Scored when patient complained that re-treatment was too expensive
TIME	
Long wait / Running behind / Rushed	Scored when patient complained of waiting too long in the waiting room or in the dental chair
Treatment duration too long	Scored when patient complained the entire orthodontic treatment was taking too long
Appointments: Poor availability / Inflexible scheduling	Scored when patient could not get an appointment soon within the office hours available
Scheduling errors / changes	Scored when patient complained that the office/providers made an error in scheduling
Duration of treatment appointments is too long	Scored when patient complained individual appointment was too long
COMMUNICATION	
Didn't answer questions / Didn't return call	Scored when office/provider did not return call, and did not answer specific questions patient asked
Inaccessible (not answer phone) / Don't acknowledge	
Inaccessible (not answer phone) / Don't acknowledge	Scored when office/provider did not answer call, and did not acknowledge presence of patient
Doesn't listen to patient / Misunderstands patient	Scored when patient stated they were not being listened to, or understood
Didn't explain well / Gave inaccurate information	Scored when patient stated the provider could not explain something clearly or gave wrong information
Does not give treatment plan / details / options / updates	Scored when details of treatment were not initially <u>given</u> or patient is not told current stage/plan or treatment
HIPPA	
UNPROFESSIONAL	Scored when patient complains the office/provider violated HIPPA laws.
Miscellaneous	Scored when patient states the office/provider is being "unprofessional"
Automated Patient Contact	
Automated Patient Contact	Scored when patient stated displeasure with automated emails or phone reminders
Office Layout/Office Design	Scored when patient expressed displeasure with how office was designed
Refusal to Treat (or continue to treat)	Scored when orthodontist refused to treat or stopped treating patient
Bad Parking/Office accessibility	Scored when patient complained of bad parking or accessibility of office (i.e. wheelchair accommodations)
Office Cleanliness/shabby	Scored when patient stated office was dirty or in a poor state
Office catered towards only children/adult	Scored when patient stated they felt the office did not treat patients of their age and they felt out of place
Multiple providers/staff turnover	Scored when patient consistently saw different orthodontists or staff members
Outdated technology/methods/not modern	Scored when patient stated the office was not up to date with treatment/technology
Poor Customer Service	Scored when patient expressly stated the office/providers had poor customer service
Lost/Broken/replace retainer/Relapse	Scored when patient had tooth relapse, or complained of losing or breaking their retainer and had no immediate replacement
No identifiable complaint	Scored when complaint could not be determined by reviewers. Review may have been sarcastic, incorrectly scored as negative, or incoherent.

Appendix C: Revised Template for Future Scoring Use (Page 1)

Pt indicated transfer (100)

WHO (check all that apply)

Orthodontist (1) Clinical Assistants (2) Reception/Office Manager/Billing (3) N.S.(4)

WHEN (check all that apply)

- | | | | | |
|--------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Pre-Appointment(1) | <input type="checkbox"/> (11) | <input type="checkbox"/> (21) | <input type="checkbox"/> (31) | <input type="checkbox"/> (41) |
| Recall(2) | <input type="checkbox"/> (12) | <input type="checkbox"/> (22) | <input type="checkbox"/> (32) | <input type="checkbox"/> (42) |
| Exam/Consult/Records(3) | <input type="checkbox"/> (13) | <input type="checkbox"/> (23) | <input type="checkbox"/> (33) | <input type="checkbox"/> (43) |
| 2nd Opinion(4) | <input type="checkbox"/> (14) | <input type="checkbox"/> (24) | <input type="checkbox"/> (34) | <input type="checkbox"/> (44) |
| During Tx(5) | <input type="checkbox"/> (15) | <input type="checkbox"/> (25) | <input type="checkbox"/> (35) | <input type="checkbox"/> (45) |
| Retention / Post phase 2/comp Tx (6) | <input type="checkbox"/> (16) | <input type="checkbox"/> (26) | <input type="checkbox"/> (36) | <input type="checkbox"/> (46) |
| Emergency Appt(7) | <input type="checkbox"/> (17) | <input type="checkbox"/> (27) | <input type="checkbox"/> (37) | <input type="checkbox"/> (47) |
| Not Specified / In General(8) | <input type="checkbox"/> (18) | <input type="checkbox"/> (28) | <input type="checkbox"/> (38) | <input type="checkbox"/> (48) |

WHAT (check all that apply)

TIME

- | | | | | |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Long in waiting room/Running behind/rushed/waiting for Dr. (11) | <input type="checkbox"/> (111) | <input type="checkbox"/> (211) | <input type="checkbox"/> (311) | <input type="checkbox"/> (411) |
| Tx. Appt - Too long (12) | <input type="checkbox"/> (112) | <input type="checkbox"/> (212) | <input type="checkbox"/> (312) | <input type="checkbox"/> (412) |
| Tx duration too long (13) | <input type="checkbox"/> (113) | <input type="checkbox"/> (213) | <input type="checkbox"/> (313) | <input type="checkbox"/> (413) |
| Too many appts/too frequent (14) | <input type="checkbox"/> (114) | <input type="checkbox"/> (214) | <input type="checkbox"/> (314) | <input type="checkbox"/> (414) |
| Schedule appts - poor avail. /inflexible scheduling (15) | <input type="checkbox"/> (115) | <input type="checkbox"/> (215) | <input type="checkbox"/> (315) | <input type="checkbox"/> (415) |
| Scheduling errors, changes (16) | <input type="checkbox"/> (116) | <input type="checkbox"/> (216) | <input type="checkbox"/> (316) | <input type="checkbox"/> (416) |
| Disrespect / inconsiderate of people's time (17) | <input type="checkbox"/> (117) | <input type="checkbox"/> (217) | <input type="checkbox"/> (317) | <input type="checkbox"/> (417) |
| Too much time between appointments (18) | <input type="checkbox"/> (118) | <input type="checkbox"/> (218) | <input type="checkbox"/> (318) | <input type="checkbox"/> (418) |
| Other (10) | <input type="checkbox"/> (110) | <input type="checkbox"/> (210) | <input type="checkbox"/> (310) | <input type="checkbox"/> (410) |

If Other, Describe Here (10): _____

MONEY/FINANCIAL

- | | | | | |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Too (very) expensive/Tx not worth \$\$ (21) | <input type="checkbox"/> (121) | <input type="checkbox"/> (221) | <input type="checkbox"/> (321) | <input type="checkbox"/> (421) |
| Re-Tx too expensive (22) | <input type="checkbox"/> (122) | <input type="checkbox"/> (222) | <input type="checkbox"/> (322) | <input type="checkbox"/> (422) |
| More \$ than others (23) | <input type="checkbox"/> (123) | <input type="checkbox"/> (223) | <input type="checkbox"/> (323) | <input type="checkbox"/> (423) |
| Extra (hidden) cost/price change/incorrect quotes/overcharge (24) | <input type="checkbox"/> (124) | <input type="checkbox"/> (224) | <input type="checkbox"/> (324) | <input type="checkbox"/> (424) |
| \$\$ before patients/Greedy (25) | <input type="checkbox"/> (125) | <input type="checkbox"/> (225) | <input type="checkbox"/> (325) | <input type="checkbox"/> (425) |
| Billing/Insurance/Flex Spending Account Problems (26) | <input type="checkbox"/> (126) | <input type="checkbox"/> (226) | <input type="checkbox"/> (326) | <input type="checkbox"/> (426) |
| Hard Sell/Salesman/ 'pushy' rushed to start (27) | <input type="checkbox"/> (127) | <input type="checkbox"/> (227) | <input type="checkbox"/> (327) | <input type="checkbox"/> (427) |
| Paid for service not delivered/completed/No Refund (28) | <input type="checkbox"/> (128) | <input type="checkbox"/> (228) | <input type="checkbox"/> (328) | <input type="checkbox"/> (428) |
| Transfer costs (29) | <input type="checkbox"/> (129) | <input type="checkbox"/> (229) | <input type="checkbox"/> (329) | <input type="checkbox"/> (429) |
| Harass for money / send to collections (30) | <input type="checkbox"/> (130) | <input type="checkbox"/> (230) | <input type="checkbox"/> (330) | <input type="checkbox"/> (430) |
| Costs are not transparent / unclear / no breakdown (31) | <input type="checkbox"/> (131) | <input type="checkbox"/> (231) | <input type="checkbox"/> (331) | <input type="checkbox"/> (431) |
| Inflexible financing / no refinancing options (32) | <input type="checkbox"/> (132) | <input type="checkbox"/> (232) | <input type="checkbox"/> (332) | <input type="checkbox"/> (432) |
| Other (20) | <input type="checkbox"/> (120) | <input type="checkbox"/> (220) | <input type="checkbox"/> (320) | <input type="checkbox"/> (420) |

If Other, Describe Here(20): _____

COMMUNICATION

- | | | | | |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Doesn't Listen to Pt. / misunderstands Pt. (41) | <input type="checkbox"/> (141) | <input type="checkbox"/> (241) | <input type="checkbox"/> (341) | <input type="checkbox"/> (441) |
| Didn't explain well / gave inaccurate information(42) | <input type="checkbox"/> (142) | <input type="checkbox"/> (242) | <input type="checkbox"/> (342) | <input type="checkbox"/> (442) |
| Didn't answer questions (in-person/phone) / didn't return call (43) | <input type="checkbox"/> (143) | <input type="checkbox"/> (243) | <input type="checkbox"/> (343) | <input type="checkbox"/> (443) |
| Tx details/options/Tx Plan not explained-given/ no Tx updates (44) | <input type="checkbox"/> (144) | <input type="checkbox"/> (244) | <input type="checkbox"/> (344) | <input type="checkbox"/> (444) |
| Inaccessible(no answer phone)/don't acknowledge/no check-in(45) | <input type="checkbox"/> (145) | <input type="checkbox"/> (245) | <input type="checkbox"/> (345) | <input type="checkbox"/> (445) |
| No reminder phone calls/appointment Alerts(46) | <input type="checkbox"/> (146) | <input type="checkbox"/> (246) | <input type="checkbox"/> (346) | <input type="checkbox"/> (446) |
| Other (40) | <input type="checkbox"/> (140) | <input type="checkbox"/> (240) | <input type="checkbox"/> (340) | <input type="checkbox"/> (440) |

If Other, Describe Here (40): _____

Appendix C: Revised Template for Future Scoring Use (Page 2)

INTERPERSONAL

Poor Personality/Poor Social Skills/Awkward/not friendly (51)	<input type="checkbox"/> (151)	<input type="checkbox"/> (251)	<input type="checkbox"/> (351)	<input type="checkbox"/> (451)
Dishonest/Lie/Distrust/Cheated/Lie for financial gain (52)	<input type="checkbox"/> (152)	<input type="checkbox"/> (252)	<input type="checkbox"/> (352)	<input type="checkbox"/> (452)
Uncaring/Pt not priority/Not accommodating/Ignored (53)	<input type="checkbox"/> (153)	<input type="checkbox"/> (253)	<input type="checkbox"/> (353)	<input type="checkbox"/> (453)
Insensitive (& ethnic, cultural)/Inconsiderate/judgmental (54)	<input type="checkbox"/> (154)	<input type="checkbox"/> (254)	<input type="checkbox"/> (354)	<input type="checkbox"/> (454)
Disrespectful/Demeaning/Condescending (55)	<input type="checkbox"/> (155)	<input type="checkbox"/> (255)	<input type="checkbox"/> (355)	<input type="checkbox"/> (455)
Aggressive/Argue/Angry/Harass (56)	<input type="checkbox"/> (156)	<input type="checkbox"/> (256)	<input type="checkbox"/> (356)	<input type="checkbox"/> (456)
Impolite/Rude/Mean/Arrogant/Insulting/Humiliate (57)	<input type="checkbox"/> (157)	<input type="checkbox"/> (257)	<input type="checkbox"/> (357)	<input type="checkbox"/> (457)
Comments about prior Tx; critical of other clinician opinions (58)	<input type="checkbox"/> (158)	<input type="checkbox"/> (258)	<input type="checkbox"/> (358)	<input type="checkbox"/> (458)
Blaming Patient for results/tardiness/crooked teeth (59)	<input type="checkbox"/> (159)	<input type="checkbox"/> (259)	<input type="checkbox"/> (359)	<input type="checkbox"/> (459)
Too much unnecessary chit-chat hinders work (60)	<input type="checkbox"/> (160)	<input type="checkbox"/> (260)	<input type="checkbox"/> (360)	<input type="checkbox"/> (460)
Psychologically disturbed / unfit for job (61)	<input type="checkbox"/> (161)	<input type="checkbox"/> (261)	<input type="checkbox"/> (361)	<input type="checkbox"/> (461)
Other (50)	<input type="checkbox"/> (150)	<input type="checkbox"/> (250)	<input type="checkbox"/> (350)	<input type="checkbox"/> (450)

If Other, Describe here: _____

QUALITY OF CARE / SERVICE

Disagree with plan/approach/Judgment/need for tx (71)	<input type="checkbox"/> (171)	<input type="checkbox"/> (271)	<input type="checkbox"/> (371)	<input type="checkbox"/> (471)
Poor Interdisciplinary care /poor referral/poor sending records (72)	<input type="checkbox"/> (172)	<input type="checkbox"/> (272)	<input type="checkbox"/> (372)	<input type="checkbox"/> (472)
Not hygienic/sanitary/re-using single use only (73)	<input type="checkbox"/> (173)	<input type="checkbox"/> (273)	<input type="checkbox"/> (373)	<input type="checkbox"/> (473)
No time for pt/factory environ/inattentive/don't see main ortho (74)	<input type="checkbox"/> (174)	<input type="checkbox"/> (274)	<input type="checkbox"/> (374)	<input type="checkbox"/> (474)
Bad outcome (not relapse): complication/not finish/poor progress (75)	<input type="checkbox"/> (175)	<input type="checkbox"/> (275)	<input type="checkbox"/> (375)	<input type="checkbox"/> (475)
Pain Complaints/Procedures uncomfortable (76)	<input type="checkbox"/> (176)	<input type="checkbox"/> (276)	<input type="checkbox"/> (376)	<input type="checkbox"/> (476)
Broken (or poor quality) appliance/Brackets/wire (77)	<input type="checkbox"/> (177)	<input type="checkbox"/> (277)	<input type="checkbox"/> (377)	<input type="checkbox"/> (477)
Lack of Skill/Errors/Ability/Office coordination/organization (78)	<input type="checkbox"/> (178)	<input type="checkbox"/> (278)	<input type="checkbox"/> (378)	<input type="checkbox"/> (478)
Tx not Individualized (79)	<input type="checkbox"/> (179)	<input type="checkbox"/> (279)	<input type="checkbox"/> (379)	<input type="checkbox"/> (479)
Other (70)	<input type="checkbox"/> (170)	<input type="checkbox"/> (270)	<input type="checkbox"/> (370)	<input type="checkbox"/> (470)

If Other, Describe here: _____

HIPPA

<input type="checkbox"/> (180)	<input type="checkbox"/> (280)	<input type="checkbox"/> (380)	<input type="checkbox"/> (480)
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UNPROFESSIONAL

<input type="checkbox"/> (190)	<input type="checkbox"/> (290)	<input type="checkbox"/> (390)	<input type="checkbox"/> (490)
--------------------------------	--------------------------------	--------------------------------	--------------------------------

MISCELLANEOUS (50-55)

Retainer - Lost / Broken / Replace / Relapse (50)	<input type="checkbox"/> (X)	No Identifiable Complaint (51)	<input type="checkbox"/> (X)
Poor Customer Service (52)	<input type="checkbox"/> (X)	Refusal to treat (or continue to treat) (53)	<input type="checkbox"/> (X)
Formal complaints filed or threatened / legal action (54)	<input type="checkbox"/> (X)		
Other <input type="checkbox"/> (55). If Other, Describe here: _____			

OFFICE CHARACTERISTICS (60-72)

Office Layout / Office design (60)	<input type="checkbox"/> (X)	Automated Patient contact (61)	<input type="checkbox"/> (X)
Bad parking / poor office accessibility (62)	<input type="checkbox"/> (X)	Multiple providers (too many) / high staff turnover (63)	<input type="checkbox"/> (X)
Office cleanliness / shabby (64)	<input type="checkbox"/> (X)	Office catered towards only children / adults (65)	<input type="checkbox"/> (X)
Office Layout / Office design (66)	<input type="checkbox"/> (X)	Office is too nice / too fancy (67)	<input type="checkbox"/> (X)
Outdated technology / methods / not modern (68)	<input type="checkbox"/> (X)	Lack of privacy during treatment (69)	<input type="checkbox"/> (X)
Inconvenient location (70)	<input type="checkbox"/> (X)	Poor office hours / days open (71)	<input type="checkbox"/> (X)
Other <input type="checkbox"/> (72). If Other, Describe here: _____			

Office Response (92-99)

Type of Office Response:	<input type="checkbox"/> Apologetic(92)	<input type="checkbox"/> Defensive(93)	<input type="checkbox"/> Thanking(94)	<input type="checkbox"/> Argumentative(95)
	<input type="checkbox"/> Explanatory/Informative(96)	<input type="checkbox"/> Questioning validity of review(97)		
	<input type="checkbox"/> HIPPA(98)	<input type="checkbox"/> Ask to Contact/Trying to contact, Correct Problem(99)		

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